# Creation Matters

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## The Magnificent Mako – A Well-Engineered Shark

**by Walter Heim**

The mako shark is truly a magnificent creature. Historically, sharks were thought to be primitive stepping stones to more advanced fish. Nothing could be further from the truth. In this article, three aspects of this shark will be examined from an engineering design perspective.

### Powerful, streamlined bodies produce great speed

The mako shark has been called the cheetah of the sea. This shark has been reported to swim in excess of 40 mph. To put this in perspective, the fastest man swims a 50 m length in just under 20 seconds. A mako shark can swim the same distance in about 3 seconds. These sharks can jump 15-20 ft in the air. That corresponds to an exit velocity of 35 mph for a 20 ft jump.

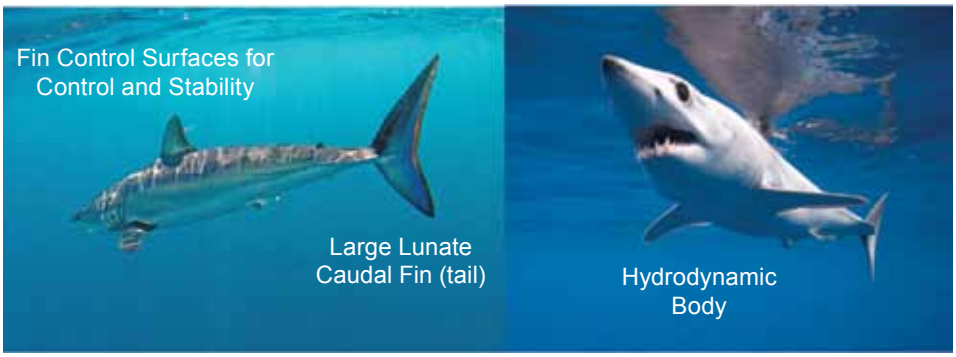



Figure 1. Mako Shark Hydrodynamic Body. Image by Walter Heim.

The body shape is like a hydrofoil that provides lift as it swims, as shown in Figure 1. Sharks are denser than sea water and will sink without the lifting force generated from swimming. The fins provide steering capability and stability control.

They also have a hydrofoil cross section.

Although not as maneuverable as other sharks, the propulsion structure is the caudal fin (tail), which is lunate (moon-

*See* **Mako** *on page 3*

## ICC and Origins 2023 Review

**by Dr. Richard Overman**

The International Conference on Creationism (ICC) is the most prestigious creation conference in the world. It is held every 4-5 years and brings together the best and brightest creation scientists from around the world. According to the ICC website,[1] "The mission of the ICC is to promote the development and dissemination of positive contributions to a young earth creationist model of origins and models of earth history that recognize the reality of the global Flood described in Genesis."

Proceedings of previous conferences are available on the proceedings page of the ICC website.[2] You can also search the Research Assistance Database (RAD)[3] at the Creation Education Resources, Inc. website to see what has been presented at previous conferences or in over 30,000 other creationist writings. The proceedings of this conference are expected to be published on the ICC website.

The ICC was preceded by a one-day conference called Origins 2023. This conference is sponsored by the Creation Biology Society and focuses on biology, geology, and theology.

### Origins 2023

The pre-conference, Origins 2023, was held Saturday, July 15. The Origins conference includes presentations from the Creation Biology Society (CBS), the Creation Geology Society (CGS), and the Creation Theology Society (CTS). All three groups were represented. Presentations from each group were provided to all attendees.

The first paper, representing the CBS, was from Caleb LePore on "Phytosaur Fossils and the Quest to Understand the Pattern

*See* **ICC** *on page 4*

# Math Matters

## Strings and Things

### by Don DeYoung, PhD

String Theory (ST) describes the possible structure of elementary particles which make up all physical matter. The idea remains tentative and controversial since proposed by Italian physicist G. Veneziano a half century ago, in 1968.

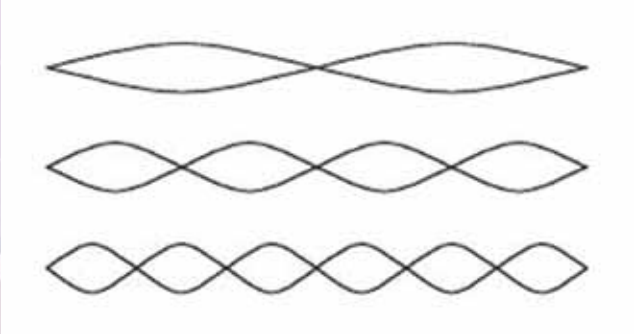
String Theory involves advanced mathematics and is far removed from the popular image of physical strings. If real, the filaments of energy are one dimensional or linear, including closed loops and open segments. They have zero thickness and a length of about $10^{-35}$ meter, far too small for experimental verification. This infinitesimal size is also called the Planck length, named for Max Planck (1858-1947). Quantum effects dominate in this realm where the concepts of particle, force, and field merge together. The value of Planck length L can be calculated from the Planck constant h, gravitational constant G, and light speed c:

$$L = (hG/2\pi c^3)^{1/2}$$

If you are so inclined, substitute the values and verify the Planck value and its unit of length (1.616…x$10^{-35}$ m). Feel free to contact me for details.

One attractive feature of ST is that several properties of subatomic particles can be mathematically matched to the vibration patterns of much larger physical strings. Particle mass and electrical charge, for example, can relate to fundamental and overtone frequencies of string vibration. Actual ST vibrations are typically greater than a billion hertz

The mathematics of ST leads to several abstract ideas about physical reality. These include as many as 9-26 dimensions of physical



space, most of them curled up or compactified and undetected. ST gives possible insight into quantum gravity, a fundamental physics puzzle. The many variables in ST also allow for multiple universes, as many as $10^{500}$, each with its own unique physical constants and space-time configuration. Clearly, String Theory includes some extravagant ideas!

What can we conclude about ST? First, the concept is a mathematical model and not necessarily reality. Second, the extremely small dimensions of ST rule out experimental verification, both now and in the foreseeable future. Third, multiple universe speculation quickly becomes philosophical and theological. Further extensions of ST include the terms mirror symmetry, superstring theory, and branes— topics for another time.

It is interesting that this theoretical frontier of modern physics connects with the behavior of classical stringed instruments. In 1619, Johann Kepler described the "Harmony of the Spheres," the orbital cycles or vibration patterns of planets. The concept of musical harmony in creation may well be continuous from the large scale of planets to the inner world of String Theory. CM

# Table of Contents


The Magnificent Mako ..... 1

ICC and Origins 2023 Review ..... 1

Math Matters ..... 2

Research Matters ..... 7

Prayer Matters ..... 8


# Creation Matters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## Mako

*continued from page 1*

like). Fish propulsion is undulatory through water—that is, sinusoidal when viewed from above. Makos are among the fast-swimming fish and have a "thunniform" signature; a long period and small amplitude as shown in Figure 2.

### Heat exchange system boosts muscle power

This powerful shark is propelled by two banks of muscle that extend from the head down to the tail. Most of the shark is muscle. A cross section through the shark shows mostly white muscle and a smaller portion of red muscle. The red muscle is thought to be used for continuous swimming whereas the white muscle is used for burst speed operation.

Figure 3 shows schematically the circulatory system of this shark, which has a two-chamber heart that pumps blood to the gills for oxygen. The oxygenated blood is then circulated throughout the shark before returning back to the heart depleted of oxygen. One remarkable design feature of this system is a countercurrent heat exchanger called a rete mirabile. The blood leaving the heart is oxygen depleted but "hot" due to the metabolic heat generated in the shark's muscle. As the hot oxygen-depleted blood approaches the gills, it enters the rete mirabile where heat transfers to "cold" oxygenated blood returning from the gills, flowing in the opposite direction through this rete mirabile. Thus, the cold oxygenated blood becomes warm oxygenated blood as it exits the rete mirabile and distributes throughout the shark.

The net effect is that the shark's body temperature is warmer than the surrounding sea water. Metabolism is greater at higher body temperatures, giving the shark an advantage over slower swimming, colder bodied prey. Studies have shown that the warm, oxygenated blood selectively warms the red muscle and gut.[1] Engineers have recognized that the countercurrent heat exchanger provides a very efficient form of heat exchange.

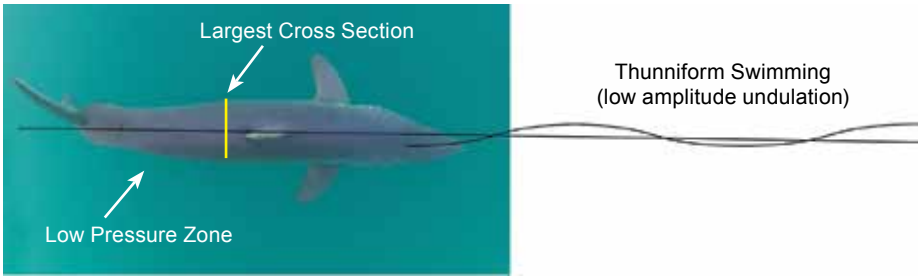


Figure 2. Mako Shark Thunniform Swimming, A Characteristic of Fast Swimming Fish. Image by Walter Heim.

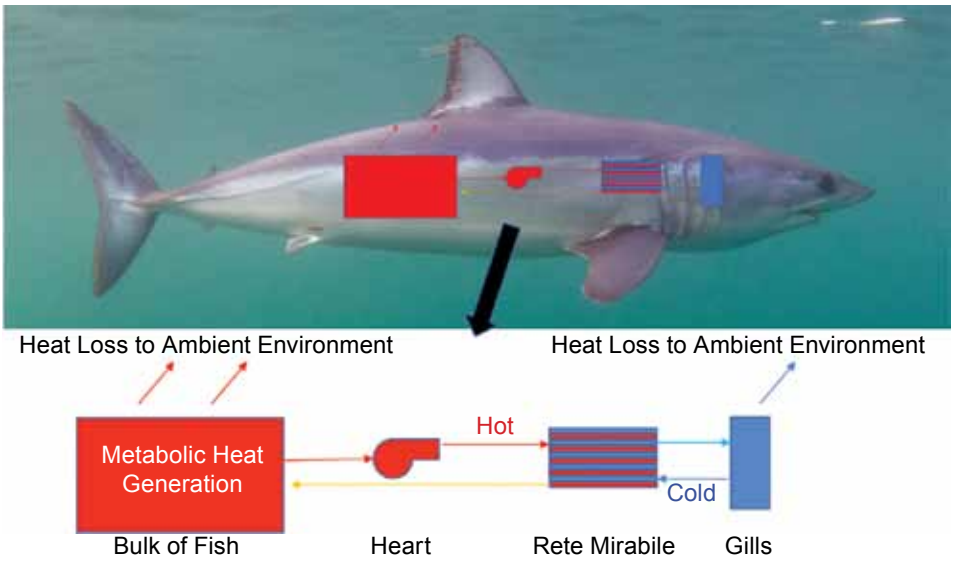


Figure 3. Countercurrent Heat Exchange Keeps the Shark Warm. Image by Walter Heim.

### Drag reduction makes swimming more efficient

One of the forces that slows the shark is *skin drag*. Skin drag is surface friction between the skin and the water. Another drag force on the shark is *form drag*, which is a suction force caused by a low pressure in the flow sucking the shark backwards, usually in zones downstream of the largest cross section of the body. Typically, there will be a low pressure on the convex side of the shark as it swims (Figure 2).

Conventional wisdom suggests making a surface smooth to minimize the skin drag. Most fish are smooth and have a slime layer over the scales to maintain smoothness. Shark skin is quite different. If the skin is stroked in the nose-to-tail direction, it is smooth. But in the tail-to-nose direction, it is quite rough to the touch, much like sand paper. This feature made shark skin a desired material for wallets as it slips into the pocket easily, but grabs as it is retrieved, preventing a pick pocket.

Under the microscope, the shark is covered with tiny scales (0.2 mm long) that are unlike any other scale (Figure 4.) They appear as small teeth (dendritic) pointing downstream, arranged in an array of overlapping rows with the scales of one

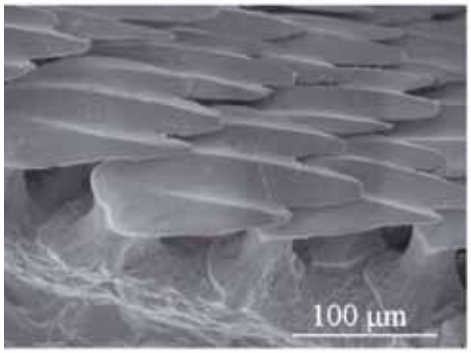


Figure 4. Scanning Electron Microscope Image of Mako Shark Scales. Image by Dr. Phil Motta and Dr. Laura Habeggar of the University of South Florida. Used by permission.

*See* **Mako** *on page 4*

## Mako

*continued from page 3*

row staggered relative to the adjacent rows. Each scale has three points forming two grooves oriented parallel to the flow. Experimentation has shown that these grooves (also called riblets) alone can reduce skin drag. Furthermore, these scales are on flexible stalks that are embedded in the underlying dermis, resembling a short lop-sided mushroom. The morphology of these scales differs, depending on the location on the shark. Some reside close to the underlying layer on short stalks while others have a longer stalk.

If water is flowed over these scales in the reverse direction, they bend forward, projecting the pointy end of the scale into the stream, a phenomenon known as bristling.[2] If the flow at the skin reverses back to normal, the scales return to the flat unbristled configuration as illustrated in Figure 5. This is all passive, happening in a fraction of a second. The scales that exhibit the largest bristle angles are located on the flanks of the shark and on the fin control surface (bristle angle up to 50°).

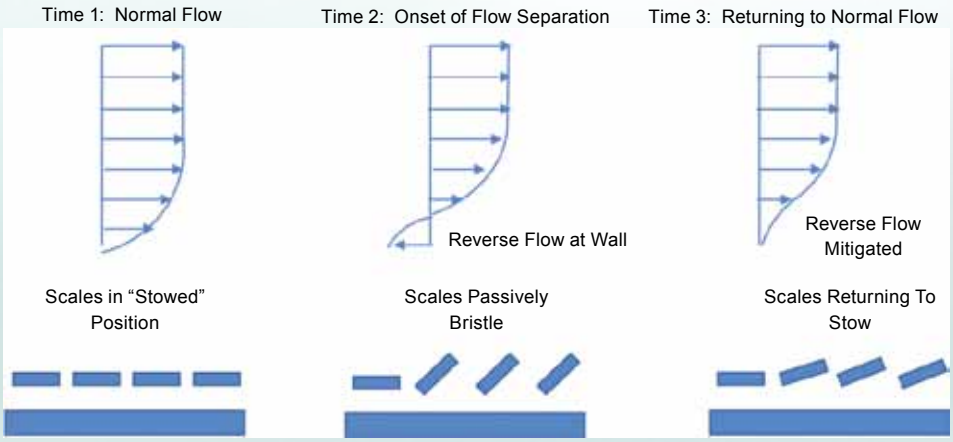
Time 1: Normal Flow
Time 2: Onset of Flow Separation
Time 3: Returning to Normal Flow
Reverse Flow at Wall
Reverse Flow Mitigated
Scales in "Stowed" Position
Scales Passively Bristle
Scales Returning To Stow

Figure 5. Bristling Scales Mitigate Flow Separation from Shark Surface, Reducing Drag. Image by Walter Heim.

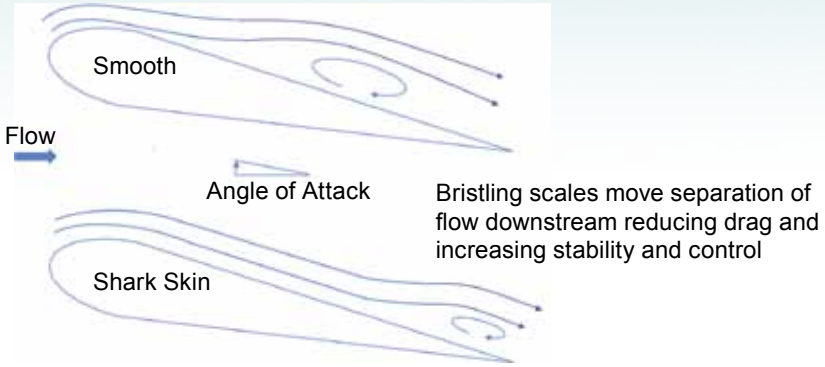
Smooth
Flow
Angle of Attack
Bristling scales move separation of flow downstream reducing drag and increasing stability and control
Shark Skin

Figure 6. Bristling Scales Prevent or Reduce Flow Separation for High Angles of Attack, Maintaining Stability and Control. Image by Walter Heim.

It turns out that rows of bristled scales resist a back flow that is caused by a large angle of attack to the flow. If a reverse flow condition occurs at the surface of the shark, the flow separates from the surface creating a separation bubble. A separation bubble imparts a high drag suction force on the shark. Figure 6 shows the net effect of mitigating separation or pushing the separation point downstream. But even more critical, flow separation on a control surface, like a fin, causes lack of control. Swimming fast is no good if it cannot be controlled.

So, this magnificent fish is cloaked with custom scales that can reduce drag and allow the shark to maintain control and maneuverability at relatively high speeds. This delayed (shift downstream) or elimination of flow separation has been demonstrated in water tunnels on statically-mounted hydrofoils covered with shark skin.[3] In fact, synthetic shark skin has been reproduced with a 3D printer on a larger scale and studied on static surfaces and swimming surfaces.[4] When compared to smooth surfaces, the drag is reduced within certain flow regimes. This recent research is of great interest to both scientists and engineers.

So, if you think sharks are "primitive" ancient creatures, think again!

### Erratum

An error occurred in the last issue of Creation Matters (Vol. 28 No. 3) on Page 5.

*For example, Dr. Andrew Snelling has demonstrated that Polonium radiohaloes (circular rings of damage caused by radiation) in zircon crystals found within the biotite flakes of the TIS granite place very low limits on the amount of time that the granite formed and cooled, on the order of days and weeks (Snelling & Gates, 2009).*

The text should read instead ("in zircon crystals" should be deleted):

*For example, Dr. Andrew Snelling has demonstrated that Polonium radiohaloes (circular rings of damage caused by radiation) found within the biotite flakes of the TIS granite place very low limits on the amount of time that the granite formed and cooled, on the order of days and weeks (Snelling & Gates, 2009).*

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(1) Bernal, D., Sepulveda, C., and Graham, J. B. (2001). Water-Tunnel Studies of Heat Balance in Swimming Mako Sharks. *J Exp Biol* 204, 4043-4054.

(2) Lang, A. (2020). The Speedy Secret of Shark Skin. *Physics Today* 73(4), 58-59.

(3) Smith, J. A. (2011). Turbulent Separation Control Effects of Mako Shark Skin Samples on a NACA 4412 Hydrofoil. *U of Alabama Master's Thesis*.

(4) Wen, L., Weaver, J., and Lauder, G. (2014). Biomimetic Shark Skin: Design, Fabrication and Hydrodynamic Function. *J Exp Biol* 217, 1656-1666.

## ICC

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of Life." Caleb is working on biological similarities by comparing phytosaur vertebral structure with modern crocodilian vertebral structure. The common creationist interpretation of biological similarities is common design. Caleb's research questions whether that is enough or if structural and functional similarities need to be considered.

Bill Barrick presented to the CTS "A Call to Unity."[4] All were asked to review and sign it.

Dustin Burlet presented a paper, which is planned to be published in the upcoming Vol. 2 of the Journal of the Creation Geology Society, on the stars in Genesis 1:16. His thesis is that the stars are not just afterthoughts but are co-rulers of the night with the moon.

Steven Boyd gave a perspective on interdisciplinary research where he discussed the benefits of multidisciplinary research and gave some examples.

This was followed by a presentation by Kurt Wise entitled "The Created Kind: Have we Got it Right?" He discussed various ways to interpret the phrase "created kind" and concluded that it is time to re-examine how the Bible defines the created kinds with the help of the theologians. Dr. Wise asked the theologians to determine if the biblical text supported a division between the created kinds – meaning that there could be no interbreeding between the kinds – or if there was no division and the kinds could interbreed. It will be interesting to see what the theologians come up with. The concern is that they will be pressured to find a way to get an interpretation that favors one way or the other. We must be very careful that we do not fall into the trap of interpreting scripture to match a particular theory and go the way of the day-agers and gap theorists of the 19th century. More will be presented on this at next year's Origins conference.

For geology, Steve Austin presented a paper on "Dead Sea Water Levels Signal Historic Climate Change Synchronizing Amazingly with Bible History." The paper is in pre-publication. It shows how higher Dead Sea levels correspond to warm and wet conditions while lower Dead Sea levels correspond to cool and dry conditions. Higher and lower levels were easily correlated to biblical times of plenty and famine, respectively.

## ICC 2023

All the evening sessions of the ICC consisted of talks by leaders in various fields of study. The presenters gave their impressions of the state of creation science as it relates to their field of study. Table 1 shows which leaders talked about which fields of study. It was interesting to hear each of the perspectives and think about the synthesis of the different fields of study into a cohesive, comprehensive biblical creation model.

| Field of Study | Presenter |
|---|---|
| Theology | Dr. Bill Barrick |
| Geology | Dr. Andrew Snelling |
| Physics | Dr. Russell Humphreys |
| Biology | Dr. Joe Francis |
| Archaeology | Dr. Douglas Petrovich |
| Astronomy | Dr. Danny Faulkner |
| Numerical Modeling | Dr. John Baumgardner |
| Genetics | Dr. John Sanford |
| Paleontology | Dr. Kurt Wise |
| Education | Dr. Matt McLain |
| Chemistry | Dr. Aaron Hutchison |

Table 1

Below is a summary of a few areas that were of particular interest to the author.

**1. Creation in Theology – Dr. Bill Barrick**

Dr. Barrick addressed two areas of concern he has with creation science as it relates to theology. Theology, in this context, has to do with the interpretation of scripture. His two concerns are:

a. Internal - How we interpret the Word of God. Creation science has suffered from inaccurate exegesis. We need to be careful to make sure that our exegeses are accurate.

b. External - How we use or relate the Bible to our science. Science cannot impose itself onto the biblical text. Instead of biblical interpreters consulting scientists, scientists must first consult biblical interpreters. Science is constantly changing; the Bible never changes.

As he was speaking, I was reminded of a letter to the editor I published in the Creation Research Society Quarterly,[5] where I laid out a biblical scientific method. The first two steps of the biblical scientific method are:

1. Searching the scriptures to see what specific, if any, information the scriptures contain about the subject.

2. Searching the scriptures for any biblical principles that should be applied to the subject of the inquiry.

After these two steps, the standard scientific method applies.

**2. Creation in Geology – Dr. Andrew Snelling**

Dr. Snelling gave his view of the current state of creationist geology. Dr. Snelling believes that the creation geologic community has made much progress, but more work needs to be done. We still need to build a comprehensive model of radioactive decay and need a new generation of creation geologists to carry on the work.

**3. Creation in Physics – Dr. Russ Humphreys**

Dr. Humphreys presented four projects in young cosmology physics that need to be solved. These are challenging problems that we need young bright creation physicists to help solve.

a. How galaxies form

b. Find the picture under Quantum Mechanics (in other words, discover the forces and parts of matter that are the underlying foundations of Quantum Mechanics)

c. Delve into the structure of the raqia (firmament or expanse)

d. Search out how time works

*See* **ICC** *on page 6*

## ICC

*continued from page 5*

**4. Biblical Genetics – Dr. John Sanford**

Dr. Sanford announced that he is refocusing his ministry toward working with the next generation to battle the anything-goes mentality in sexuality, which is destroying humanity, and anything-goes madness in schools, which is destroying the next generation. Hence, his creation work in genetics will diminish.

For this talk, however, he described the work of a team of biologists using the premise that "good science affirms scripture." His work, over the years, has been on genetic entropy (that we are devolving rather than evolving). He referenced a secular research paper where the author, who has spent years researching E. coli bacteria, concluded that his E. coli experiments have shown "reductive evolution." This means the loss of information (e.g. genetic entropy).

**5. Education – Dr. Matt McLain.**

Dr. McLain spoke on the "Current State of Creation Education." His talk focused on young earth creationist colleges and universities – specifically, young earth colleges and universities that offer science degrees. His search, which he cautioned may not have been exhaustive, identified 13 YEC colleges and universities that offer science degrees. When he broke them down into the various science disciplines, the pickings got even slimmer with no creationist colleges or universities offering degrees in astronomy and meteorology. His point was that we need more creationist colleges and universities and more degree programs in the existing creationist colleges and universities. We also need more jobs for creationist-trained graduates and to better prepare them for secular jobs that are available if a creationist job is not available. Table 2 shows the results of his analysis.

**6. Chemistry – Dr. Aaron Hutchison.**

Dr. Hutchison noted that there is not a lot of chemistry research in creationism and focused on two areas where chemists have a role to play. One is that chemistry can be used to "form rocks correctly." When a geologist looks at a rock, the geologist sees minerals. When Dr. Hutchison looks at a rock, he sees chemical compounds. This can help in understanding the formation of the rock with respect to the solubility of those compounds.

The other role chemists can play is in isotopic studies (i.e. radiometric decay). Chemists can approach each isotope individually with respect to chemical markers. The bottom line of his presentation is that there is a place for chemists in creation.

*See* ICC *on page 7*

| Discipline | # YEC Offerings |
|---|---|
| Science Degrees | 13 |
| Biology | 12 |
| Math | 10 |
| Chemistry | 9 |
| Engineering | 8 |
| Environmental Science | 6 |
| Physics | 5 |
| Geology | 2 |
| Paleontology | 1 |
| Astronomy | 0 |
| Meteorology | 0 |
| Graduate Programs | 2 |

**Table 2**

### CRS Grants for Creation Research

Each year the National Science Foundation (NSF) distributes billions of dollars to support scientific research. This funding has catalyzed the development technologies we now take for granted—smartphone screens, weather radar, etc. Unfortunately, agencies like the NSF suffer from a major limitation—namely, the naturalistic worldview that dominates academia. Because of this presuppositional blind spot, they do not fund creation research.

The CRS, of course, does not have billions of dollars at its disposal. However, because of some generous donors, we do have the ability to provide some grants to fund investigation of the creation/flood model. If you have an idea for original research that could develop this model—but you need funding for equipment, books, site travel, etc.—we hope you would consider applying for a CRS grant.

Some things to keep in mind:

- Only CRS members are eligible to apply.
- The grant amount is $5000 or less. (Larger requests require extraordinary circumstances.)
- The researcher must agree to submit an article to CRSQ based on the results of the research.

Here is the process:

- Proposals are accepted from January to March each year (see link below for proposal forms).
- Proposal reviews and funding decisions take place in April and May.
- Contracts for funded proposals go out at the start of June.

For more information, please see the CRS website (https://www.creationresearch.org/vacrc-research-grants) or scan the QR code to the right. There is also a link on that page if you are interested in donating to help fund more creation research.

Scripture asks, "Who has despised the day of small things" (Zechariah 4:10)? These grants are small compared to the billions available to the NSF, but our prayer is that the Lord take these "small things"—which He enables us to do—and uses them for His glory.

# Research Matters

## Summaries of Cutting-Edge Research from the *Creation Research Society Quarterly*

### Summaries compiled by Lindsay Harold

#### Ruminants are Discontinuous with other Even-Toed Ungulates

Baraminological studies help illuminate the distinctions between the created kinds (baramins). Recent research in the eKINDS Project, a special research focus of the Creation Research Society, has been examining the ruminants (sub-order Ruminantia) as a potential apobaramin, meaning they do not share ancestry with any non-ruminants.

In Part 1 of the analysis, Lightner and Cserhati used two molecular techniques to compare ruminant species (e.g. cattle, sheep, goats, deer, giraffes, antelope) with a variety of other ungulate species such as camels, hippopotamuses, and pigs. One technique was the Gene Content Method (GCM) which compares proteins among species to determine the overall similarity of their proteomes and allows grouping of species according to their similarity. The other technique was the Whole Genome K-mer Signature (WGKS) method, which produces similar comparison and grouping of species by their genetic sequences. In both analyses, ruminants tended to group with other ruminants and separate from non-ruminants. There were also some distinctions noticed within the ruminant group, suggesting that there may be more than one created kind among the ruminants.

In part 2, Lightner examined anatomical traits in order to identify distinctive differences between ruminants and non-ruminants. Since there are limits to what unguided, natural processes can produce, major differences in anatomical features suggest separate ancestry. In particular, two anatomical features were examined — the complex, 4-chambered stomach of the ruminants and their bony headgear (e.g. horns and antlers). These features are quite distinct in structure and unique to the ruminants. The complexity of these anatomical features and their physiological functions support the conclusion that ruminants do not share ancestry with any non-ruminants.

The possibility of more than one created kind within the ruminants was also considered. Ruminants could be a single created kind with differences due to created diversity and differential loss of some traits. The tragulids (mouse deer), which are classified in a separate infraorder from the other ruminants, could be a separate created kind from the rest. This is supported by some of the molecular differences noted between the tragulids and the other ruminants and by their lack of headgear. However, some other ruminant species appear to have lost their headgear, and it may be that tragulids have also lost this feature. The third possibility is that each of the six ruminant families are separate created kinds. The most notable argument against this hypothesis is the many reports of hybridization between the bovid (cattle, antelopes, goats, and sheep) and cervid (deer) families, though none of them have been confirmed with genetic analysis. Further research is needed in order to illuminate this issue.

Lightner, J.K. and M. Cserhati. 2023. The uniqueness of ruminants (Ruminantia) among the even-toed ungulates (Artiodactyla): Part I: Molecular baraminological studies. *CRSQ* 59:142-150.
Lightner, J.K. 2023. The uniqueness of ruminants (Ruminantia) among the even-toed ungulates (Artiodactyla): Part II: Unique anatomical and physiological traits. *CRSQ* 59:200-206.

***Continued creation research is made possible by the generous gifts (time, money, and prayers) of our many supporters. Thanks to all who have contributed!***

## ICC

*continued from page 6*

#### Conclusion

There were a lot of good papers presented at this conference. The conference highlighted how much creation science has moved beyond refuting evolution and toward the development of a cohesive, comprehensive, and confident biblical creation model – a model that not only explains what God has done and is doing but also has predictive power and utility. To be sure, we have a long way to go, but we are moving in the right direction and pulling all the scientific disciplines together.

*Dr. Overman has more details about the conference on his blog.*[6]

#### References

(1) https://www.internationalconferenceoncreationism.com/

(2) https://www.internationalconferenceoncreationism.com/proceedings/

(3) http://creationeducation.org/ (Click RAD button)

(4) Dr. Barrick's Call to Unity can be found at: https://creationtheologysociety.org/2023/05/01/a-call-to-unity

(5) Rich Overman. 2021. Biblical Science. Creation Research Society Qtr. Vol 57 #3 (Letters to the Editor):pp. 236-238.

(6) https://www.creationeducation.org/blog

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Research is our middle name

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# Prayer Matters

**Praise:** Generous donations have allowed the purchase of a FTIR Spectrometer for studying collagen decay as part of the iDINO Project.

**Prayer:** Please continue to pray that a suitable Lab Director will be found for the Van Andel Research Center.

Pray for the upcoming 2024 CRS Conference and all the planning and work that goes into it. The presenters need prayer for their research projects. CRS leadership need wisdom as they select abstracts, make arrangements, and handle the tasks of preparation. Attendees need prayer for safe travels.

We cannot do this without your prayers.

***Thank You!***

## Registration for the 2024 CRS Conference is now OPEN!

The 2024 CRS Conference will be held July 25-27 at the Ark Encounter in Williamstown, KY. This is intended to be a useful forum for sharing ideas and furthering creation research. Most talks are not polished presentations of final research, but discussion of research in progress. This is a scientific conference, and thus a bit more technical than many lay-level creation conferences sponsored by other creation ministries. However, scientists and non-scientists alike can enjoy and learn from these presentations.

This year, the conference begins with workshops in astronomy, geology, biology, and education. You can choose a workshop for no extra charge when you register for the conference.

Ken Ham will be giving the Henry Morris Memorial Lecture on the evening of the 26th. This lecture is free and open to the public.

There is also an optional, post-conference field trip to the Red River Gorge on Sunday, July 28 that will be led by Danny Faulkner. Space is limited, so sign up for this as soon as possible to ensure your spot. Only registered conference attendees are eligible for the field trip. Lunch and snacks are provided, and a church service will be held as well.

To learn more about the 2024 conference or to register, visit creationresearch.org/conference-2024. Past conferences have been wonderful opportunities to connect with other creationists, discuss ideas, collaborate on projects, and learn about the current state of creation science. If you enjoy the CRSQ and Creation Matters, you don't want to miss the CRS Conference. There really is no other conference like this one!